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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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NOTICE TO SUBSCRIBERS.

Owing to the general strike and the suspension of publication for the past two weeks, all subscription contracts for "The Chemical Age" are put forward a fortnight, two weeks being added to the end of the contract. All subscribers, therefore, will receive 52 issues for their year's subscription.

After the Strike

THE general strike is over. It was a daring and a risky experiment for organised industry and for the nation as a whole. There was the latent possibility that it might end in national disaster. Owing, however to the mental and moral stability of the British people, it has come and gone without producing any fundamental change. We can well understand the amazement with which more volatile nations have watched it. The loss has been heavy and widespread, but, looking back on it all, certain general gains emerge from the wreckage.

The first is the impression left on all parties that the remedy for industrial and social troubles lies in reason and justice, and not in blind force. No one has put this more pointedly than Mr. Frank Hodges, the secretary of the Miners' International. "The effort," he states, "failed because, gigantesque though it was, it was a mere toy in the presence of the economic facts, the social forces, and the simple humanity with which it was confronted." "True leadership," he adds, "does not consist in preparing paper schemes which are torn into a thousand fragments when the test of practice is applied. Trade union leadership, to be worth anything to the workers, should be based upon knowledge of the facts of industry, of economics, and sincere love of one's fellow-men."

Perhaps the most amazing thing of all is that this unprecedented national crisis, the moment it was over, left everybody better tempered and more friendly one towards another. The wise policy of "No Reprisals," which was the essence of the King's message and of Mr. Baldwin's national appeal, has been loyally adopted all round. If any have desired to see trade unionism finally smashed and dispersed, they represent the smaller people. Still more, the fiery revolutionaries who see in the desolation of industry and the disruption of ordered society a short cut to immediate happiness for all, have ceased to count. What, it is to be hoped, we shall see as the result of this vast and hazardous experiment is a saner, more responsible, and more co-operative spirit all round. In these days of large-scale commercial operations, organisation of capital and of labour there must be. But it must be co-operative organisation for efficiency and peace, and not for industrial stagnation and war. While the general strike is off, the mining deadlock unfortunately continues, but this, too, it is hoped, may soon be settled on a just basis.

Though the chemical industry has naturally suffered, it has suffered less than many. This is largely the result of good organisation against emergencies and of good relations between management and men. The great concerns like Brunner, Mond and Co., the United Alkali Co., the British Dyestuffs Corporation, Nobel Industries, and many others have carried on without serious inconvenience. Comparatively few of the half million workers came out, and consequently orders for home and export trade can be executed from stocks as far as transport is available. The various branches, however, differ in their capacity for continued production according to their coal supplies, and for the heavy chemical and tar distillation industries this is a matter of some concern. The merchanting business has naturally been held up by the dislocation of transport.

As to ourselves, two issues of THE CHEMICAL AGE have been cancelled, owing to the stoppage of the printing and distributing trades. The policy adopted by Benn Brothers, Ltd., in relation to this and to their other journals, was a clear and simple one. It was to suspend publication altogether on the ground that national interests required for a few days at least that every available facility should be strictly reserved for vital emergency services. We believe our readers will endorse this as the right policy.

Brunner, Mond, and Co.'s Annual Meeting

Progress of Synthetic Ammonia Undertaking

SIR ALFRED MOND presided over the annual meeting of Brunner, Mond and Co., on May 13, and reviewed at length the work of the year. He referred with regret to the death of Mr. Thomas Smith, one of the originators of the Castner-Kellner Co. and managing director at the time of his death; to the resignation of the chairmanship of the board by Mr. Roscoe Brunner owing to ill-health and his own appointment to succeed him; and to the resignation from the board of Mr. Gold and his replacement by Mr. Felix Brunner. "We have," Sir Alfred said, "a fine record of over half a century's success behind us, but we do not intend to rest upon the laurels of the past. Efficiency, economy, progress, and scientific advance are the only conditions on which industrial enterprises can maintain their position in the stress of world-wide competition. With the loyal co-operation of all those associated with our great enterprises I feel confident that our future will not only equal, but excel, the past. Our business to-day is larger and more complicated, and consequently more difficult, than in former times; the progress of technical advance all over the world is more rapid than at any other period. We have recently, after careful study, introduced further improvements in the organisation and development of our business. We are to-day not merely manufacturers of alkali, but actively engaged with our subsidiaries in the manufacture of many varieties of chemical products and the development of new processes. Your balance-sheet shows you that your investments in allied and associated companies amount to a very large sum indeed. By closer co-ordination, both commercially and technically, we hope to derive, in the future, even greater advantages from the size and manifold activities of our business."

Synthetic Ammonia Developments

After referring to the settlement of litigation with Lever Brothers, Ltd., and reviewing the satisfactory financial position in detail, the Chairman proceeded:—

"We are examining every avenue to obtain greater efficiency, not merely by the replacement of obsolete plant but by new and improved methods. Your board had just sanctioned the expenditure of no less than £100,000 for the purpose of a new research laboratory at your Winnington works, in order to strengthen and further our already existing research department. Even the process of the manufacture of ammonia, soda, and their by-products, on which so much genius has been devoted, is still capable of improvement and development.

"I would like to say a word on the position of our associated companies. I am glad to be able to report to you that they are developing on sound lines and all contributing to the profits of your company. Our newest child, Synthetic Nitrates, is making steady and remarkable progress. It has earned during this last financial year, operating on a small scale, and after allowing substantial depreciation, a profit of £103,647. The increased plant operating to-day will, if the strike does not interfere with its output, very considerably increase this profit. We are engaged on a very large extension which will about treble our present output, and are preparing to make as well ammonium nitrate, sodium nitrate, nitric acid, anhydrous ammonia, and ammonium carbonate and bicarbonate, as well as other products. This great programme will, I hope, be completed before the end of 1927, and with it, we have every reason to anticipate, a substantial amount of profits will be earned. I myself have recently spent some time at these works. The remarkable achievement of modern scientific engineering in chemical developments will open out a range of new technological chemistry whose limits at present it is difficult to foresee. I have no doubt that you will be as gratified as I am that Brunner Mond, who are the pioneers of the alkali business in this country and its modern development, will also be the pioneers in this country of these important new developments. I may say that for the present financial year no dividends from these sources have been taken into our balance-sheet. I would congratulate more especially Lieut.-Colonel Pollitt and Mr. H. A. Humphrey, my co-directors, and the other members of the staff, as well as the very fine body of workmen we have engaged in this company, on the results which they are achieving.

"Our next largest associate is the Castner-Kellner Alkali Co., of Weston Point, which, under the able chairmanship of Mr. G. W. Balfour, is pursuing its activities and making profits, and developing many new and improved sides of the chemical industry. Our other subsidiaries, Chance and Hunt, Electro-Bleach, and the Buxton Lime Firms are all operating in a satisfactory manner.

"I would like to take this opportunity of saying a few words on the selling organisation we have created in our export markets. We have to-day a chain of Brunner-Mond organisations operating as individual limited companies in India, China, Japan, and Australia, managed by local boards. They not only unceasingly work for the development of the uses of the products of our company, but also act in the capacity of agents of other British concerns. They form a world network through which we buy many of our requirements. Their staff are very able men, and I would like especially to say a word of recognition to our Chinese staff, scattered as it is throughout a large part of that country, for the manner in which they have, during a period of greatest difficulty, disturbances, and danger, successfully carried on the business."

General Strike Effects

After expressing satisfaction at the withdrawal of the General Strike the Chairman announced that their operations so far had in no way been interfered with, and they had been able to carry on their manufactures in full production. They owed this fact to the foresight of the management, but even more to the splendid loyalty of all those in their service during this period of stress and crisis. In all the many years of the existence of the firm they had succeeded in avoiding ruinous and calamitous process or labour disputes. They had always endeavoured, and always would, to treat those associated with them in production in a considerate, fair, and generous manner, and to develop more and more that feeling of co-partnership among all those engaged in their industry. "I sincerely believe," he said, "that in this direction lies the only hope of the future of British industry, and I hope we shall find still further ways and means of more distinctly associating all those engaged in production both with the reduction of costs (which is most essential) and with the profits to which they have helped to contribute by their work."

Sir John Brunner seconded the adoption of the report.

Mr. Felix Brunner and Mr. Henry Mond were re-elected directors, satisfaction being expressed that the third generation of the existing founders had joined the board. The six other retiring directors were re-elected. The meeting closed with votes of thanks to the officials, staff and workmen, and to the Chairman.

The Calendar

May 25	Institution of Petroleum Technologists: "Organic Theories of Oil Origin." Ernest Clark. 5.30 p.m.	House of the Royal Society of Arts, John Street, Adelphi, London.
27	Institute of Chemistry Students' Association (London): Annual General Meeting followed by Presidential Address. 8 p.m.	30, Russell Square, London, W.C.
27	Royal Institution of Great Britain: "Corrosion, Tarnishing and Tinting of Metals." Ulick R. Evans. 5.15 p.m.	21, Albemarle Street, Piccadilly, London.
28	Society of Chemical Industry and Institute of Chemistry (Edinburgh and Glasgow Sections): "Polysaccharides." Principal Sir J. C. Irvine. 6.30 p.m.	St. Andrews.
28	Chemical Engineering Group: Annual General Meeting. 6 p.m.	Abbey House, Westminster, London.
Jun. 1&2	Society of Glass Technology.	London.
3	Chemical Society: Ordinary Scientific Meeting. 8 p.m.	Burlington House, Piccadilly, London.

Reviews

HEAT TRANSFER AND EVAPORATION. By W. L. Badger. New York: The Chemical Catalog Co., Inc. Pp. 306. $5.00.

The aim of the author is aptly expressed in the preface, in which this passage occurs: "It was begun with the ambitious intention of a comprehensive work on heat transfer. This intention lasted through Chapter 4, weakened through Chapter 5, and disappeared entirely after Chapter 6. These six chapters had occupied three years, and from this point on the book deals with evaporators and the more practical side of the subject."

After reading the section devoted to heat transfer one is impressed by the industry and patience of the author in sifting the published results of experiments from many different sources. The conclusion arrived at is that the subject is so fraught with difficulties, due to the many complex factors, that only in the simplest cases is even an approximation to the truth possible. It is to be regretted that the author has not carried out more experimental work, as it is only by careful direct experiment on commercial plant in which every controlling factor is noted, that one can hope to make any real progress.

It is unfortunate that very little has been published on the results obtained from commercial plants. This is no doubt due firstly to the practical difficulties in carrying out these tests in chemical works, and secondly to the natural reluctance of the manufacturers of heat transfer plant to publish data often only obtained by long and costly research work.

Leaving generalisations, it is noted that for the gas film co-efficient the author favours a simple formula in which the film co-efficient equals a constant multiplied by the weight of gas per sq. ft. of cross-sectional area raised to the 0·75 power, and gives a table of various values covering average conditions. On page 45, a formula is given as due to Lewis, McAdams and Frost, in which the factors include the specific heat, absolute temperature, molecular weight and "form factor." I believe that this formula was originally given by Weber. Based upon tests on commercial plants it is, in my opinion, the most accurate and can be used with confidence.

On page 50 the author touches upon the heat transfer between superheated steam and a metal wall, and states that it is of the same order as a permanent gas, but does not refer to its increase at higher pressures as shown from Poensgen's tests. (See *The Engineer*, page 221, August 31, 1923, in which co-efficients up to 300 kg. calories per hour 1° C. M² are obtained.) There appears to be much conflicting evidence as to the true heat transfer between superheated steam and a metal wall. In an article published in *Die Wärme*, dated September 18, 1925, an attempt was made to prove from theoretical reasons that the heat transfer co-efficient was much higher than the generally accepted figure.

The apparent inconsistency in results obtained by different investigators may be accounted for, if in some experiments the steam was cooled to below condensation temperature, whilst in others the steam was superheated throughout. When heat is transferred from superheated steam to a metal wall at a slow rate so that the steam is not condensed, the wall remains dry but is covered with a stagnant layer of superheated steam offering a great resistance to heat flow. When the rate of heat transfer is such that part of the steam is condensed, a layer of water is formed on the wall and it is quite conceivable that the resistance of this film is much less than a gas film. The author points out the fallacy of using superheated steam for obtaining high temperatures owing to so small a percentage of the heat being available.

The concluding chapter on heat transfer deals with the effect of air in the steam and stresses the importance of efficient air vents. The remainder of the book deals with various types of evaporators. It is of interest to note that in the section dealing with distilled water evaporators, the author advocates the use of the low pressure type in order to reduce scaling troubles to a minimum. Considerable space is given to the relative merits of thermo-compression and multiple effect evaporation, the use of the former being admissible in cases where electrical power is very cheap and fuel is dear.

In conclusion, the author is to be congratulated on his very able treatment of a difficult subject, and the book can be recommended with confidence to chemical engineers who are responsible for the design of heat transfer plant.

J. ARTHUR REAVELL.

QUALITATIVE INORGANIC ANALYSIS. By D. R. Snelgrove, Ph.D., M.Sc., A.I.C., and J. L. White, D.Sc. London: Methuen and Co., Ltd. Pp. 281. 7s. 6d.

The ground covered by this book meets the requirements of the Honours B.Sc. and A.I.C. examinations. It deals with the identification of the common metals and usual acid radicals, and some idea of its scope and arrangement may be obtained from the titles of its twelve chapters: Working Hints, Principles Involved in Qualitative Analysis, Dry Tests, Making a Solution, Treatment of Insolubles, Separation of the Groups, the Phosphate Separation, Separation of the Metals in the Groups, Acid Radical Determination, Detection and Separation of "Similars," List of Tables, Reactions of the Metals, and Reactions of the Acids. Special attention has been paid to those parts of the subject that the average student finds difficult. The theoretical principles involved are kept carefully in view, to prevent the work from degenerating into a meaningless routine; at the same time the authors have made a special point of giving the student practical hints wherever possible, in order that he may learn from the outset to carry out his analyses with all the speed and simplicity consistent with accuracy.

The De Vecchis Beet Sugar Process

To the Editor of THE CHEMICAL AGE.

SIR,—It was a surprise to learn from your editorial of April 24 that the De Vecchis Beet Sugar Process had been so adversely criticised in the discussion which took place on Mr. J. Kwantes' paper. This process has been investigated by a Government Commission, and their Report (1925) does not confirm the criticisms that were levelled at it in this recent discussion, e.g., it was stated that an efficient extraction of sugar from the dried slices was not obtained, whereas the Commissioners found only 0·18 per cent. of sugar in the exhausted slices—a quite satisfactory extraction.

Quite recently (February, 1926), with others, I visited Italy and examined this process in operation there. There is no question that the dried slices will not keep without deterioration or "heating up" for a considerable time. I have seen samples that were perfectly sound, two to three years old, which had been kept exposed to the air of a room for that period. Further, it is not a part of the De Vecchis Process that there should be small drying installations scattered about the country away from the central factory. The Government Commissioners have mentioned this possibility, but I do not think such an arrangement would be desirable or necessary. Extraction is not by diffusion but by lixiviation, is rapid, complete, and gives a purer juice much richer in sugar than in the diffusion process. This arises from the fact that the drying process not only removes moisture from the beets but at the same time coagulates the albumenoid and pectic bodies and bursts the cells, making the sugar readily accessible for extraction without the contaminating impurities which call for so much carbonatation in the diffusion process. The De Vecchis Process may be slightly more expensive in fuel, but against this it will work all the year round and requires considerably less capital for the same output of sugar.—Yours, etc.,

C. SCOTT GARRETT.

Aylburton, Lydney, Glos.
May 2.

Synthetic Petroleum Hydrocarbons

ACCORDING to results published in the *Berichte der deutschen chemischen Gesellschaft*, Professor Franz Fischer and H. Tropsch have obtained petroleum hydrocarbons by the catalytic reduction and hydrogenation of carbon monoxide at ordinary pressure. According to the conditions chosen they obtain a predominance of gas oil (ethane, propane, butane), benzine, petroleum, and solid paraffin. These synthetic products, hydrocarbons of an essentially paraffin nature, have the advantage over the corresponding natural products that they need no refining and are free from sulphur and its derivatives.

The Artificial Silk Industry

The Work of the Chemist

WHEREAS every branch of the textile industry requires the constant assistance of the chemist in one department or another, the production of artificial silk is in reality more of a chemical process than any other. It may be mentioned that the rapid expansion of this new industry is resulting in many attractive openings for chemists. These are not likely to diminish in number but will more probably continue to increase. At present the industry is merely in its infancy. Great Britain alone exports and imports artificial silk to over 80 countries. The present extraordinary demand is the result of the painstaking work of our chemists in the first place, and through the combination of their knowledge with that of the textile engineer and of both together with the commercial and sales departments. The consumption of artificial silk is well over twice that of real silk.

Chemists have steadily overcome, one by one, the difficulties of waterproofing, dyeing, oiling, sizing, and strengthening, etc. In an almost insidious manner and quite without ostentation the large companies have introduced improvements which can only be understood by testing artificial silk bought from a high-class firm to-day and comparing it with a similar product purchased a year ago. The chemists have scarcely been able to get the necessary machinery to make trial lots, at times, the pressure on the sales department being so great, but to-day it is an open secret that at any time the largest producers could place on the market products which would have the effect of rendering all the present ones obsolete. Demand for the present material is, however, so great that no such upheaval in the industry is likely to take place until the first sign of a slump comes. By that means a revival will be brought about.

Wood or Cotton

It is worth while to consider a few of the matters of the most pressing importance which face the chemist desirous of studying this fascinating industry which turns trees into stockings. First of all, the most important change which is taking place at present refers to the tree end of the story. It is a fact that wood-pulp is not now so popular as a raw material for the viscose system. True, there are some kinds of silk made extremely successfully from wood-pulp, but it is being found that cotton provides a thread with a 25 per cent. greater breaking strain, and the fibre is generally speaking of an otherwise superior quality. The comparative cheapness of wood-pulp and the stability of the supply contrast strongly with the position of cotton, but the future of artificial silk rests with quality rather than quantity, and the inevitable result is the trend towards cotton as a basic cellulose. It is not impossible that the tendency of American producers to build factories nearer and nearer to the cotton belt is connected with this development.

Wood-pulp always contains residual gums, etc., but cotton may be regarded as an almost pure cellulose. Bleaching is of course necessary, and for this caustic soda and later hypochlorites are employed. In the nitro-cellulose and cellulose acetate processes of artificial silk manufacture, cotton is invariably used, but in the cuprammonium and viscose processes wood-pulp, cotton, flax, etc., are employed. At least 80 per cent. of the whole world supply is made by the viscose process. The details of the actual manufacture are now so well-known that it is quite unnecessary to take readers through the many processes; suffice it to say that the cellulose must be handled as little as possible and that to get over this difficulty all manner of conveying machinery, etc., has been introduced into the later plants. The strength of the solutions used, the purity of the raw materials, the composition of the alkali celluloses, xanthates, and viscoses, are in the sole charge of the chemist and his staff.

After the cellulose, be it wood-pulp or cotton, has been passed through the caustic soda solution and the resultant alkali cellulose is formed and disintegration has taken place, the first "ageing" process commences and great skill is needed to determine the exact duration and the temperature required, varying as they do with the nature of the pulp. The alkali-cellulose is then treated with carbon disulphide and the resultant xanthogenate of cellulose must be perfectly free from lumps, which, if allowed to pass, would cause serious trouble in the subsequent squirting or "spinning" process. It must be seen that all fibres are uniformly attacked by the carbon-bisulphide and if the xanthogenate is easily soluble in water at this stage a fair degree of success may be said to have been attained.

When the operation of "spinning" is finally reached the chemist is working with the textile engineer, and whilst the spinning machine is itself a veritable hotbed of trouble, the chemist is busily engaged on such matters as the composition of the so-called spinning bath, which decomposes the viscose solution by neutralising the caustic soda, thus freeing the cellulose. The bath is itself the subject of many patents but as a general rule it contains a 10 per cent. solution of sulphuric acid together with mineral salts, sulphates and sugar. A specific gravity of from 1·2 to 1·3 and upwards is required. The important factor is of necessity the percentage of acid required to neutralise the caustic soda, and the action of the mineral salts used to "salt out" the sodium xanthogenate. It is impossible to generalise too far, the process being entirely one for the individual works chemist to watch and adjust as required. The chemist is again required for the washing of the finished hanks in order that the sulphur contained in the xanthogenate and set free in the spinning bath may be removed with a sodium sulphide bath. Bleaching and final washing complete the process. In the cuprammonium process of artificial silk production the raw material is treated in beating machines and passed forward to a chamber in which every part is brought into contact with atomised copper hydrate. In the kneading machines ammonia causes the solution of the cellulose. The temperature of the solution in all stages is of the utmost importance, in order to avoid any possibility of oxidation of the copper hydrate. The recovery of chemicals and the utilisation of by-products is an important branch of this process of manufacture and is essential to its satisfactory commercial outcome. In the nitro-cellulose process the raw material, i.e., cotton linters, is turned into nitro-cellulose and dissolved in a solution of alcohol and ether, forming a paste of a "collodion" type. It is not until the actual fibres have been formed into skeins that the actual denitration takes place. The loss of weight which occurs in this process was a matter of grave concern, and much expert attention has been devoted to the question with the result that vastly improved methods have resulted.

The work of the chemist is by no means finished with the production of the artificial silk yarn; some of the greatest difficulties have yet to be faced in the dyeing process. One thing, however, may be emphasised and that is that many of the complaints of faulty dyeing have their cause in the ageing of the earlier processes.

J. G. O.

Modern Portland Cement Manufacture

AT a meeting of the London Section of the Society of Chemical Industry, papers on "Modern Portland Cement Manufacture" were read by Mr. S. Dickson and Mr. R. H. H. Stanger. Mr. Dickson said that the greatest improvement in recent years had been in regard to the fine grinding of the raw materials used, consisting, in the South of England, chiefly of chalk and clay. The strength of the cement increased with the fineness to which the particles were ground after clinkering. There were many Portland cements on the market which compared favourably with alumina cements from the point of view of quick setting and strength. The main mechanical development was a combination mill in which the clinker and gypsum were delivered into the crushing portion automatically in suitable proportions. The final grinding was very fine, and it was being realised that rapid hardening depended more on the fineness of division of the particles than on the chemical composition. Figures were given to illustrate the difference between ordinary and rapid hardening Portland cements, the improvement being due solely to fine grinding. Mr. Stanger's paper dealt with some aspects of testing. In the first standard specifications of 1905, the permissible residue on an 180 by 180 mesh sieve was fixed at 22·5 per cent., now reduced to 10 per cent. The standard specification for maximum magnesia content was now 4 per cent. Five per cent. was allowed on the Continent and in America. The compression test had been adopted in every country except Great Britain.

British Association of Chemists

"Chemistry House" and Unification

THE complaint is heard from all sides that there are too many societies of chemists, and what is more important, too many subscriptions. It is not for a moment to be doubted that all these societies do valuable work, but the fact remains that the cost to the individual if he is to be associated even with half of them, is enormous, though he will feel, at least in his darker moments, that he is missing something worth having by not belonging to this or that society.

This point has been among the many considerations that gave birth to the idea of "Chemistry House." It is difficult to estimate the saving that would be effected if all chemical societies found refuge under one shelter, but there is certainly little doubt that in the matter of rent considerable economy would result. The expenses of meeting would also be greatly reduced, and it is probable that personal consultation would save much of the expense of postage and telephone. As to whether this would result in a considerable reduction in subscription is open to question; but this advantage would be gained. There might be some facilities such as a library which the societies would hold in common. Thus a member of any one society could make use of this and have at his command every kind of scientific literature. There are other facilities that might be unified and offered in common and there is no question that economy of working could be obtained in this way. It is of course a profound, but common, fallacy to suppose that as soon as any venture is floated upon a large enough scale most difficulties automatically disappear, but it remains true that the difficulties of large scale operations are generally of a different, and, when courageously handled, of a less formidable order.

But there is another and from many points of view a more important advantage to be gained from a scheme of centralisation. Mr. Garland in his speech at the annual dinner of the London Section of the Association alluded to the fact that of the 14,000 chemists of America a very large majority had at least a bowing acquaintance with each other. And it seems evident that with the chemist in America as with the doctor in this country, the professional bond is very strong. The Chemistry House scheme would give increased facilities for the meeting of chemists and would strengthen a relationship which at present is deplorably weak. The Association has always maintained that the chief problem that chemists have to face is the professional, that is to say, the social problem. If it were possible to strengthen the bond between societies, that between individuals would in time also be strengthened and a sounder relationship established between the individual and the profession of which he forms a part. A unity that can only be bought through the sacrifice of individual effort is strongly to be deprecated, but it is not the experience of other professions which are organised, that individual effort is sacrificed in this way. On the contrary, the more highly organised the profession the more highly talented are the individuals it tends to produce. Medicine, as an example, was collectively and individually in a sorry plight before professional organisation came to succour it.

It is no matter of surprise, therefore, that at the Congress to be held in July the Association hopes to raise a discussion upon "Chemistry House" and matters allied to it; and it hopes that every shade of chemical opinion will be represented at that meeting.

H. T. F. R.

Lead Restrictions in Belgium

A NEW Belgian law, dated March 30, and effective six months after publication, prohibits the sale to private individuals of white lead and other white pigments of lead, as well as colours ready for use containing such pigments. The law also prohibits the use of these articles in the interior painting of buildings and the painting of articles intended for the furnishing of buildings. The use of white pigments other than those mentioned above is only to be authorised if they do not contain more than 2 per cent. of metallic lead by weight. The restrictions are not to apply to: White pigments of lead contained in tubes weighing less than 500 grs.; certain works for export; operations which set free sulphurous gas.

Conditions are laid down for the sale, transport, etc., of white lead, etc., for professional purposes.

The Hardening Period of Paints

DR. J. NEWTON FRIEND and Mr. B. L. Griffin report, in the *Journal of the Oil and Colour Chemists' Association*, some results obtained by them on "The Influence of the Hardening Period upon the Protective Influence of Paints." Mild steel plates, measuring six inches by four inches, were coated with ferric oxide paint (Turkey red iron oxide 80 parts, pure raw linseed oil 100 parts), and after standing in the laboratory for varying periods were immersed in rain water, in the open, for several months. The degree of corrosion was tested after immersion by soaking the plates in alkali to loosen the paint, removing the rust with emery, and determining the loss in weight. The degree to which the plates were attacked varied inversely as the time which had elapsed between painting and immersion, i.e., the larger the interval, the less the corrosion. The loss was 33½ times as great when this interval was 11 days as when it was 300 days. When the interval was 250 to 300 days the amount of corrosion seemed to become constant, which seemed to indicate that after this period (which may be described as the "hardening" period of the paint) the protective efficiency of the paint film reached a maximum. These results refer to single coats of paint only. For the testing of several varieties of paint as applied to steel plates it therefore appears that all the painted plates should be kept for one year prior to immersion. Ships, of course, must be refloated as soon as possible after painting, when the efficiency of a linseed oil paint is at its minimum. For such work a rapid hardening paint must be sought.

In addition to the above, the journal contains, among other things, the report of a paper by Dr. L. C. Martin on "Colour Measurements and Standardisation," together with an account of the discussion which followed the reading of the paper.

Infringement of "Erasmic" Trade Mark

ON Thursday in the Chancery Division, Mr. Justice Astbury heard a motion by the Erasmic Co., Ltd., of Warrington, against Mr. Robert J. Zara, of Lansden Place, London, for an injunction to restrain the defendant from infringing plaintiffs' trade mark "Erasmic." Counsel for the plaintiffs stated that the defendant had been selling under the name "Erasmic" soap which came from France and was not manufactured by the plaintiffs. His Lordship had granted an interlocutory injunction until further order.

The defendant, who appeared in person, said that he was willing that judgment should be entered in favour of the plaintiffs, and plaintiffs' counsel asked for an order on the terms that there would be judgment for the plaintiffs for an injunction and delivery up of the infringing articles, and that the defendant would pay £2 agreed damages and the taxed costs. The defendant said he had none of the soap in stock. He bought it in the ordinary market.

His Lordship made the order as agreed, and for the delivery of any stocks remaining in the defendant's possession.

British Artificial Silk Production

MORE than £31,250,000 is now invested in our artificial silk industry. At this time last year Courtaulds and Celanese were the only companies producing it on a commercial scale, and their combined capital is £26,000,000. Since then new companies have commenced work. The actual production in Great Britain has been somewhat of a mystery. The levying of the 1925 Budget excise duty on artificial silk has, however, thrown some light on the subject. The excise duty dates from July 1, 1925, and from that date to December 31, 1925, duty was charged on 13,783,292 lb. of artificial silk and 311,291 lb. of waste, totalling 14,094,583 lb. Assuming that this was the normal production for six months, the total exciseable production for 1925 would be 28,189,166 lb. To this total must be added the total exports, which are not liable to excise duty, amounting approximately to 6,500,000 lb. This brings the total production of the United Kingdom up to 34,789,166 lb.

BRUNNER, MOND AND CO., LTD.—The directors have decided to declare an ordinary dividend for the year ended March 31 last at the rate of 14 per cent., making 10½ per cent. for the year, less income tax. A sum of £94,289 is placed to general reserve, £150,000 to suspense account, and £152,927 carried forward.

From Week to Week

MR. A. N. S. SANDEMAN, M.P., has been appointed a director of British Celanese, Ltd.

PROFESSOR F. G. DONNAN, C.B.E., F.R.S., Professor of General Chemistry in University College, London, has been elected an honorary member of the American Chemical Society.

HARVEY CORPORATION, LTD., of Broadway Buildings, Westminster, announce that they have organised their activities for the sale of machinery into a separate department, which will enable them to give expert service for the supply of civil engineering plant and general industrial machinery.

BABCOCK AND WILCOX, LTD., the well-known water tube boiler makers, of Regent Park, Sydney, have presented the Government Technical College of New South Wales with equipment consisting of a water tube boiler, 200 h.p. steam superheater, and chain grate stoker, valued at about £3,000, to be used for engineering class demonstrations.

THE SUFFOLK IRON FOUNDRY (1920), LTD., of Stowmarket, have appointed the British Oxygen Co. sole selling agents for their brands of welding rods, namely, "Ferro-Silicon," "Super-Silicon" and "Sifbronze." The agency will include Great Britain, Northern Ireland, Irish Free State, India, Australia and New Zealand. This arrangement, it is hoped, will ensure better service at less expense.

THE BIRMINGHAM SECTION of the Eighth British Industries Fair, to be held from February 27 to March 4, 1927, will be housed in the enlarged exhibition buildings at Castle Bromwich. The Government has agreed to spend a sum not exceeding £25,000 for publicity purposes in advertising the Fair at home and abroad. A good many past exhibitors have already applied for increased accommodation.

THE THOMAS TURNER GOLD MEDAL awarded for conspicuous service to metallurgy and metallurgical science was presented to Sir Gerard Muntz on Thursday of last week at Birmingham University. The last previous recipient of the medal was Sir Robert Hadfield. The great change which had taken place in regard to metallurgical study was emphasised by Sir Gerard Muntz, who also spoke of the value of the Institute of Metals and of the work of those who had been associated with it.

BRITISH AND GERMAN TRUST, LTD., is the title under which a company has been registered, with a capital of £1,000,000, for the purpose of lending money to German industrial concerns. There are four British directors—Lord Ashfield, Sir George May, Mr. A. R. Wagg and Mr. A. Palache (chairman)—and four German directors, who are heads of banks in Berlin. The present activities of the company will chiefly centre on financing German industrial concerns whose requirements are not large. It is likely that later on business will be done with concerns which are not German.

THE BRITISH ASSOCIATION'S visit to Leeds next year was the subject of an inaugural public meeting recently held in the city. The date provisionally fixed for the meeting—e.g., the week August 31 to September 7—was confirmed. The meeting was addressed by Mr. F. E. Smith, Director of Research at the Admiralty, and one of the general secretaries of the Association. Speaking of the work of the Association, he said that it stood for all science and all branches of science. At its meetings many epoch-making announcements, such as that of Bessemer, which revolutionised the steel industry, had been made.

A SPECIAL COMMITTEE of the Institute of Chemistry is considering the possibilities of increasing the scope and utility of the appointments register and special funds have been allocated. A proposal to form a section of the Institute in New Zealand is welcomed, provided that fifteen members residing there desire this development. The examinations will be held from September 20 to 25 and September 27 to October 2. Entries close on July 19. The Council of the Institute has been invited to send representatives to attend the centenary celebrations of the birth of Stanislao Cannizzaro at Palmero, in May, and to the sixth congress of Industrial Chemistry from September 26 to October 3, in Brussels.

THE GERMAN POTASH SYNDICATE and the French Société Commercial des Potasses d'Alsace are reported to have made a seven-year agreement covering foreign potash trade. The agreement is said to have been made on the night of April 11 at Lugano, a small lake town in Switzerland, near the Italian frontier. The agreement became effective on May 1 and is to replace the current provisional agreement expiring on that date, which divided the world's potash markets outside of Germany, France, and French colonies and protectorates in the ratio of 70 per cent. of the trade to Germany and 30 per cent. to France. According to information now available in Berlin, Germany retains the German market and France the French market, including her colonies and protectorates. The ratio deliveries in the American market remain unchanged at the present time, but future ratios for all markets, with the exception of France and Germany, are dependent upon the extent to which potash sales increase.

GLASGOW CORPORATION has invited the British Association to hold its 1928 meeting in Glasgow. Previous visits to the city were in 1840, 1855, 1876, and 1901.

THE GENERAL MEETING OF THE INSTITUTION OF PETROLEUM TECHNOLOGISTS called for Tuesday, May 11, is postponed until Tuesday, May 25, when Mr. Ernest Clark will read a paper on "Organic theories of oil origin."

IN ACCORDANCE WITH THE RECOMMENDATION of Sir Frank Heath for the reorganisation of Australia's scientific research activities, the Commonwealth Government has decided to appoint an advisory committee immediately. The chairman is Mr. G. A. Julius, of Sydney, a native of Norwich, England, and a member of the Institute of Mechanical Engineers, London.

THE BRITISH CHEMICAL AND DYESTUFF TRADERS' ASSOCIATION, in a statement recently issued, complained that the Government decision to renew for 10 years Part I. of the Safeguarding of Industries Act was based on the report of a Board of Trade Committee whose appointment and composition, it is alleged, were unknown to the general public until its report and recommendations were published.

LEEDS TERCENTENARY CELEBRATIONS to be held on July 8 and 10 will include an Industrial Exhibition. Chemistry will be in the hands of Mr. Branson, who has already made arrangements for a comprehensive exhibit of Leeds industrial and pharmaceutical chemistry, with the support of local firms. The mining methods and machinery section will be assembled by Professor Ritson, Leeds University, and Mr. H. C. Embleton.

MR. H. LAMBOURNE, M.A., M.Sc., F.I.C., has been appointed Head of the School of Chemistry at the Polytechnic, Regent Street, London, in succession to Dr. E. C. Edgar, who has been appointed Principal of the Rutherford Technical College, Newcastle-upon-Tyne. Mr. Lambourne was senior lecturer in organic chemistry at University College, Nottingham, from 1919 to 1924, and from 1924 until the present time he has held the post of Head of the Chemistry Department of the Borough Polytechnic Institute.

SIR ROBERT HADFIELD, the inventor of manganese steel, in announcing last week the discovery of a new alloy steel, stated that a turbine constructed with it had been tested at a speed of 55,000 revolutions per minute. It was worked in a temperature of 800° to 900° C., being brought to very bright red heat without impairment of efficiency. He predicted that this new steel would help to solve industrial problems in the application of high temperature gases, and might, in time, revolutionise mechanical propulsion.

THE WELLINGTON (SALOP) GAS CO., on the recommendation of their engineer and manager, Mr. H. J. Woodfine, have placed an order with the Woodall-Duckham Vertical Retort and Oven Construction Co. (1920), Ltd., for an installation of continuous working vertical retorts, having a carbonising capacity of 37 tons per day. The plant will be complete with coal and coke handling machinery, coke storage hopper for loading into railway trucks, and provision will be made for the installation of a waste heat boiler at a later date.

INTERNATIONAL COMBUSTION LTD., grinding and pulverising offices, 11, Southampton Row, London, report the sale of 6 ft. Hardinge Pebble Mill for regrinding tin ore to 60 mesh for Cornwall; 4½ ft. Hardinge Ball Mill for regrinding carborundum to 200 mesh; 5 ft. by 22 in. Hardinge Pebble Mill with new patented Hardinge Superfine Classifier for dry grinding feldspar to 200 mesh; 8 ft. by 48 in. Hardinge Ball Mills for Union Minière du Haut Katanga; Raymond Cage Mill for grinding petroleum coke, 2 tons an hour, for France; and No. 5 "Rayco" Pump for transporting alumina at the rate of 20 tons an hour, for France.

THE LONDON SECTION of the Society of Chemical Industry held its annual general meeting at Burlington House on May 3, Mr. C. S. Garland, chairman of the Section, presiding. The report of the committee showed that there has been an increase in membership of 114. Referring to the membership of the Society as a whole, the chairman said that there were at least 60,000 manufacturing firms in this country, all of whom were dependent in some measure on chemical industry, and yet the total membership of the Society was between 6,000 and 7,000. Three vacancies on the committee of the London Section were filled by the election of Professor J. C. Drummond, Mr. C. A. Klein, and Dr. R. Lessing.

A RESEARCH LABORATORY, to be known as the National Association Institute of Cleaning and Dyeing, is being constructed at Washington. The building will be completed before the end of the present year, and will be maintained by the National Association of Dyers and Cleaners. It will include research laboratories of the most modern type as well as a small scale dyeing and cleaning establishment where problems solved in the laboratory can be put to practical test. The cost of the building when completed will be in the neighbourhood of two hundred and fifty thousand dollars. The Institute will be operated in close association with the Bureau of Standards. The Institute will endeavour to solve the problems of the members of the Association, and there will be a post-graduate course of technical instruction for men who have already had practical experience in the dyeing and cleaning industry.

(Continued from p. 458)

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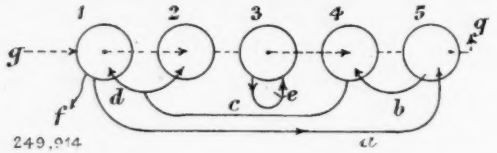
Abstracts of Complete Specifications

249,895. HYDROCARBONS, PROCESS FOR THE TREATMENT OF. E. Goltstein, 17, Argelander Strasse, Bonn, Germany. Application date, September 30, 1924.

Liquid oils, vapours, etc., obtained in the distillation of petroleum are subjected to the action of ultra violet rays from a mercury vapour lamp immersed in the liquid or vapour whereby a change in the specific gravity and boiling point is produced. The preferred wave length employed is 0·000256 mm.

249,914. SULPHURIC ACID, PROCESS OF MANUFACTURING. H. Petersen, 6, Hohenzollernstrasse, Steglitz, Berlin. Application date, December 29, 1924.

In the manufacture of sulphuric acid by the chamber method an intimate mixture of gases and liquids is obtained



by subdividing the packing material in the towers so that it does not exceed an average diameter of 40 mm. For the packing of those parts of the system in which denitration takes place a size of about 3 cm. is preferred, while the filling for the absorption containers is preferably 1–10 mm. The gases are forced through the packing by an exhauster or fan and the liquid on the surface of the packing is thereby atomised. The height of the containers is less, and the diameter is greater than that previously employed. One or more additional acid-forming units may be arranged between the denitration parts and the absorbing parts of the system. These may be supplied with water, or with sulphuric acid, or nitrous sulphuric acid. The formation of sulphuric acid is effected by the reaction between nitrogen oxides, sulphur dioxide, and air.

In the system of reaction chambers 1, 2, 3, 4, 5, the path of the liquor is indicated by full lines *a*, *b*, *c*, *d*, *e*, *f*, and the path of the gases by dotted lines *g*. The chamber 1 serves as the denitrating unit from which acid is withdrawn at *f*, while the remainder is returned to the nitrogen, oxide absorbing unit 5 from which the liquid flows into the unit 4, and thence into units 1 and 2. The additional reaction chamber 3 is supplied with liquids which circulate through it alone.

249,916. NEUTRAL OR NEARLY NEUTRAL TRIGLYCERIDES, PROCESS FOR CONVERTING MUTUALLY OR WITH OTHER ESTERS. C. Van Loon, 142, Singel, Dordrecht, Holland. Application date, December 30, 1924.

The conversion of neutral or nearly neutral triglycerides mutually or with other esters is effected by heating them in the presence of a catalyst which promotes the esterification of free fatty acids and free alcohols or the action of free acids or free alcohols on triglycerides. Suitable catalysts include aromatic or aliphatic aromatic sulphonic acids, metals such as cadmium, lead, tin, or zinc, and their compounds, compounds of the alkali or alkaline earth metals, or mixtures of these. The reaction may be effected under reduced pressure and in an atmosphere of inert gas. It is thus possible to effect an interchange of the fatty acid radicles of fats and oils so that the colour, taste, odour, etc., of these substances are not impaired, but the melting point is changed. Crude fats containing a percentage of fatty acids may be subjected to the conversion, which may be preceded or followed by hardening or refining processes. In an example cocoa butter is heated for two hours at 200° C. and under reduced pressure with 0·9 per cent. of sodium ethylate. The melting point is thereby raised from 31·3° C. to 39·7° C., and the solidifying point is lowered from 27·3° C. to 23·2° C. Other examples are given of the treatment of tristearine and soya bean oil with stannous hydroxide, and neutral cocoanut oil and ethylstearate with tin powder.

249,925. HYDROGEN, MANUFACTURE OF. W. P. Rogers, The Manor Cottage, Goldsithney, Marazion, Cornwall. Application date, January 1, 1925.

In the usual process for making hydrogen by the reduction of iron oxide with water gas, and reoxidation with steam, the vertical retorts containing iron oxide are usually 10–12 feet in height. The oxidation period is about 10 minutes and the reduction period about 20 minutes. It has been found that a given quantity of oxide will yield a larger quantity of gas per hour if the depth of iron oxide is reduced to about 5 feet, while the periods of oxidation and reduction are rendered nearly more equal. The gases produced by the reduction of the iron oxide by means of water gas are revivified by passing over heated carbon in a water gas generator, and used again for the reduction. The hot gas leaving the oxidising retorts passes through a heat interchanger, through which the cold gas passes on its way to the reducing retorts. The six retorts *a* are arranged in two groups of three, each connected in parallel and heated externally by gas burnt in a flue *b*. Reduction and oxidation take place alternately in the two groups by means of an arrangement of valves as shown in Figure 2. Reducing gas passes from a holder *l* through pump

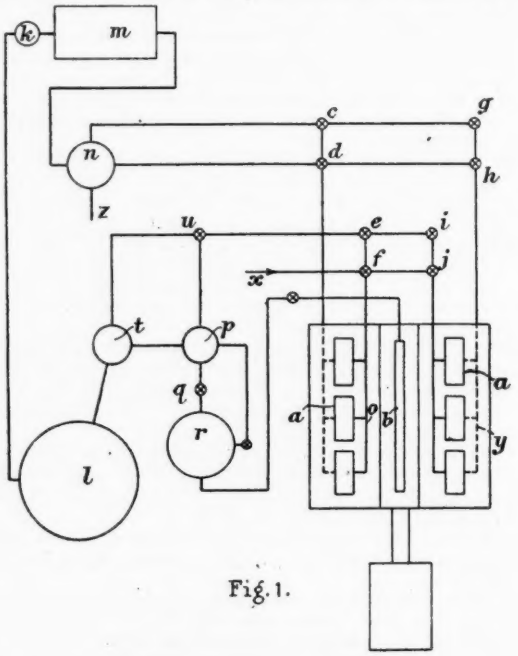


Fig. 1.

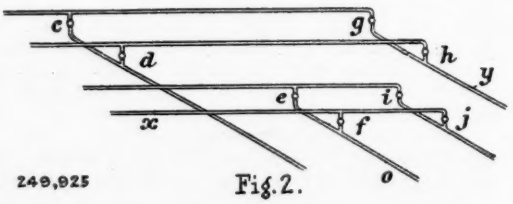


Fig. 2.

or booster *k*, and purifier *m* and heat interchanger *n* to the left-hand retorts *a* through valve *d* (valve *c* being closed). The spent reducing gas passes into a pipe *o* and through valve *e* (valve *f* being closed), valve *u*, heat interchanger *p*, and valve *q*, to the generator *r*. The gas is reduced to carbon monoxide

and hydrogen, and returns to the heat interchanger *p*, scrubber *t* and gas holder *l*. During this period steam has been passing through pipe *x* and valve *j* (valve *i* being closed) to the right hand retorts *a*. Hydrogen passes into the pipe *y* and through valve *g* (valve *h* being closed) to the heat interchanger *n* and pipe *z*. The groups of retorts are changed over by opening valves *h*, *i*, *f* and closing valves *g*, *j*, *e*.

249,973. OXIDATION PRODUCTS OF AROMATIC HYDROCARBONS, MANUFACTURING BY AIR OXIDATION. A. G. Green, "Quedgley," Hersham, Surrey. Application date, February 6, 1925.

It is known that some intermediate products such as anthraquinone and phthalic anhydride can be obtained from appropriate hydrocarbons by limited combustion or oxidation by air or oxygen in the presence of a catalyst. These reactions are highly exothermic and are very difficult to control on a large scale owing to the increase in temperature and consequent increase in the rate of oxidation. It is now found that all such reactions can be controlled by spraying water into the interspaces between successive layers of catalyst. The latent heat necessary to vaporise the water lowers the temperature of the hot gases. The reaction chamber is provided with perforated plates on which is placed the catalyst, *e.g.*, pumice stone coated with vanadium pentoxide. Atomisers are placed between the trays. A detailed example is given of the oxidation of naphthalene to obtain phthalic anhydride, the temperature in the reaction chamber being maintained at 400°–450° C. by means of water sprays. In a similar manner anthraquinone is obtained from anthracene.

249,993. REDDISH-YELLOW VAT DYESTUFFS, MANUFACTURE OF. British Dyestuffs Corporation, Ltd., 70, Spring Gardens, Manchester, J. Baddiley and A. Shepherdson, Crumpsall Vale Chemical Works, Blackley, Manchester. Application date, March 5, 1925.

Ordinary flavanthrone or indanthrene yellow G is dissolved in sulphuric acid of 66° Bé., and the solution diluted with water, when a precipitate is obtained which dyes redder and brighter shades. Alternatively the flavanthrone may be treated with sulphuric acid of such a strength that it will dissolve the impurities but not the pure flavanthrone.

250,075. AZO DYESTUFFS, MANUFACTURE AND PRODUCTION OF. J. Y. Johnson, London. From Badische Anilin and Soda Fabrik, Ludwigshafen-on-Rhine, Germany. Application date, July 13, 1925.

This process is for producing new azo dyestuffs which contain the grouping

$$-N=N-\text{aryl}\,(p)-N=N-(p)\,\text{aryl}-N=N- \text{ or}$$

$$-N=N-\text{aryl}\,(p)-\underset{\diagdown\,O\,\diagup}{N\ -\ N}-(p)\,\text{aryl}-N=N-$$

coupled with two molecules of salicylic acid or its homologues or derivatives and sulphonic acid groups. The azo dyestuffs derived from sulphonated paranitro-arylamines and salicylic acid or its homologues or derivatives are subjected to alkaline reduction as to convert two nitro groups into an azo or azoxy group. Similar azo dyestuffs can be obtained by starting from unsulphonated azo dyestuffs derived from a paranitro-arylamine and salicylic acid or its homologues or derivatives, and either sulphonating it before applying alkaline reduction, or first reducing it by an alkaline reducing agent to effect the above linking of two molecules and sulphonating the reduction product.

250,078. SILICA GEL, MANUFACTURE OF. Chemische Fabrik auf Actien (vorm. E. Schering), 170, 171, Mullerstrasse, Berlin, and W. Klaphake, Tempelhof, Berlin. Application date, July 20, 1925.

It has been found that the absorption value of silica gel can be considerably increased by first drying in air until the water content is 10–15 per cent. and finally drying at about 650° C. while air is simultaneously passed over it.

250,102. REMOVING ALUMINIUM CHLORIDE RESIDUES FROM VESSELS USED FOR CATALYTIC TREATMENT OF HYDROCARBONS, PROCESS FOR. A. J. H. Haddan, London. From Gulf Refining Co., Port Arthur, Texas, U.S.A. Application date, September 11, 1925.

The hard carbonised residue containing aluminium chloride which remains in a still after the catalytic treatment of hydrocarbons is disintegrated into small particles by wetting with water, and then washed from the still by means of water. The stirring mechanism of the still may be used to assist in the breaking up of the mass. The water is introduced in the form of a stream to break up the aluminium chloride.

250,132. IRON CARBONYL, MANUFACTURE OF. J. Y. Johnson, London. From Badische Anilin and Soda Fabrik, Ludwigshafen-on-Rhine, Germany. Application date, November 25, 1925.

In the manufacture of iron carbonyl by passing carbon monoxide over metallic iron at high pressure, it has been found that if a temperature over 140° C. has been employed, the yield of iron carbonyl may be considerably increased if the temperature of the gases leaving the furnace is reduced before releasing the pressure. The temperature should be reduced to such a point that most of the iron carbonyl is separated in a liquid state, and the heat may be utilised for preheating the fresh gas introduced into the apparatus.

NOTE.—Abstracts of the following specifications which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention :—226,188 (Schlesisches Kohlenforschungs—Institut der Kaiser Wilhelm Ges.), relating to purification of commercial benzene, see Vol. XII, p. 163 ; 235,217 (Naamlooze Vennootschap Philips' Gloeilampenfabrieken), relating to separation of hafnium and zirconium, see Vol. XIII, p. 175 ; 244,746 (Chemische Fabrik von Heyden Akt.-Ges.), relating to manufacture of aromatic stibinic acids, see Vol. XIV, p. 211.

International Specifications not yet Accepted

247,508. TREATING MERCURY. Siemens and Halske Akt.-Ges., Siemensstadt, Berlin. International Convention date, February 14, 1925. Addition to 243,670.

In the process for converting mercury into another element as described in specification 243,670, a discontinuous jet of mercury is forced against another contact, which may be of mercury or copper. A mercury jet interrupter may be used, or a toothed wheel rotating in mercury. Self induction and capacity may be included in the circuit.

247,523–4. ALKALI HYPOSULPHITES. Farbenfabriken vorm. F. Bayer and Co., Leverkusen, near Cologne, Germany. International Convention dates, February 13 and February 14, 1925.

247,523. In the production of alkali hyposulphite from alkali busulphite and alkali amalgam, the accumulation of alkali thiosulphate and polythionates in the liquor due to further reduction, is avoided by withdrawing part of the mother liquor and replacing by water or sodium chloride solution.

247,524. Alkali bisulphites are treated with alkali amalgam to obtain the hyposulphites, and the proportion of alkali sulphite in the solution is kept below 45 gms. per litre by the addition of sulphurous acid.

247,556. DYES. Soc. of Chemical Industry in Basle, Switzerland. International Convention date, February 14, 1925.

The azo dyes from nitrated *o*-oxydiazo compounds and 1-naphthylamine derivatives which couple in the 2-position are treated with trivalent chromium salts, oxides, and hydroxides. Thus, the dyestuff from diazotised picramic acid and naphthionic acid may be boiled with chromium fluoride and glass powder.

247,582–3–4–5–6–7. HYDROGENISING COAL, ETC. I. G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. International Convention dates, February 14, February 14, February 14, February 16, February 16, February 16, 1925.

247,582. Coal, peat, lignite or wood are treated with hydrogen or reducing gases at a high temperature and pressure, in the presence of a catalyst such as iron or cobalt, and a nitrogen compound such as ammonia, ammonium sulphide, silicon or titanium nitride, or mixtures. Ammonia can be produced in the reaction vessel by the combination of nitrogen and hydrogen in the presence of activated iron, and hydrogen can be produced by the action of steam on the carbonaceous substance. Water gas, ammonia, sulphuretted hydrogen or hydrogen mixtures may replace the hydrogen. In an example, lignite is treated at 500° C. and 100 atmospheres pressure with hydrogen containing 1 per cent. of ammonia, yielding a thin oily condensate containing traces of phenols.

247,583. The hydrogenation of coal, etc., is conducted in the presence of molybdenum, molybdic acid, ammonium molybdate, or molybdenum sulphide. Inert substances and catalysts such as ammonia, iron, cobalt, zinc oxide, magnesia,

activated carbon, coke, silica, aluminium hydroxide, calcium carbonate, or clay may be present, and various hydrogen-containing gases may be used.

247,584. The hydrogenation of coal, etc., is conducted in the presence of sulphur compounds such as sulphides of the iron group, with or without metals, metalloids, activated charcoal or coke, oxides, hydroxides, carbonates, or other hydrogenation catalysts. Thus a mixture of lignite with 5–10 per cent. of iron sulphide is treated with hydrogen at 500° C. and 200 atmospheres pressure. Liquid hydrocarbon products are condensed, and the gases re-circulated as a continuous process.

247,585. This is an addition to 247,584. The process is applied to the treatment of the products of distillation or extraction of the coal, etc., and to the components, distillation residues, and conversion products of the tars, *e.g.*, cresols, brown coal wax, and coumarone resins. Thus, crude cresylic acid from coal tar and hydrogen at 400°–500° C. and 150 atmospheres are passed over precipitated cobalt sulphide and the liquid hydrocarbon products condensed.

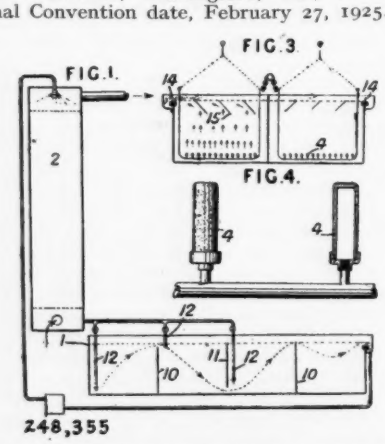
247,586. This is an addition to 247,583. The process is applied to the treatment of the products of the treatment of coal, etc., or to the components, residues, or conversion products of the tars, such as cresols, brown coal wax, and coumarone resins. Thus, producer tar from lignite, and hydrogen, are passed at 500° C. and 150 atmospheres over a pressed mixture of molybdic acid and 20 per cent. of aluminium hydroxide. The gases are condensed to obtain a motor fuel of specific gravity 0·83.

247,587. This is an addition to 247,582. The process is applied to the products obtained by treating coal, etc. The reaction vessel may contain clay, quartz, asbestos, pumice, active silica, metals, metalloids, activated charcoal or coke, oxides, sulphides, carbides, etc. Thus a mixture of the vapour of dehydrated producer tar from lignite, hydrogen, and nitrogen, is passed over aluminium hydroxide or titanium nitride at 500° C., and under a pressure of 200 atmospheres. Thin liquid hydrocarbons are obtained.

248,339. Sulpho Halogen Amide Carboxylates. Esseff Chemische Industrie-U. Handels Akt.-Ges., Linz, Austria. International Convention date, February 25, 1925.

To obtain alkaline earth carboxylates of alkali metal salts of aromatic sulpho-halogen amides, the corresponding sulphonamide carboxylic acids are treated with alkaline earth hypochlorite or similar halogen compound, and then with an alkali metal salt to substitute alkali metal for alkaline earth metal in the sulpho-halogen amide group. Thus *p*-sulphonamide benzoic acid may be treated with a solution of calcium hypochlorite, filtered, and the double sodium-calcium salt precipitated by sodium acetate.

248,355. Purifying Gases. Humphreys and Glasgow, Ltd., 38, Victoria Street, Westminster, London. (Assignees of W. H. Fulweiler, Wallingford, Pa., U.S.A.) International Convention date, February 27, 1925.



248,355

Gases are scrubbed with a weak alkaline solution regenerated by aeration with air under pressure. A full precipitation of sulphur is obtained by keeping the concentration of thiosulphate at 20 grams per litre and limiting the absorption of sulphuretted hydrogen. About 4–16 times as much bicarbonate as carbonate is maintained in the solution. The solution passes from the washer 2 through valves 12 to aerating tanks 1 provided with baffles 10, 11. Air is injected through alundum cylinders 4 having a porosity of 30,000–60,000 per sq. in., and the sulphur is separated by an adjustable dam 14 and inclined baffles 15.

Specifications Accepted with Date of Application

226,188. Commercial benzene, Method of purifying. Schlesisches Kohlenforschungs—Institut der Kaiser Wilhelm Ges. December 11, 1923.

235,217. Dissolving a mixture of hafnium and zirconium phosphates and separating hafnium and zirconium, Process of. Naamlooze Vennootschap Philips' Gloeilampenfabrieken. June 6, 1924.

244,443. Poly-iodine substituted isatins, Manufacture of. Chemische Fabrik auf Actien (vorm. E. Schering). December 10, 1924.

244,444. Iodine substituted oxindol, Manufacture of. Chemische Fabrik auf Actien (vorm. E. Schering). December 10, 1924.

244,746. Aromatic stibinic acids, Manufacture of. Chemische Fabrik von Heyden Akt.-Ges. December 18, 1924.

249,895. Hydrocarbons, Process for treatment of. E. Goltstein. September 30, 1924.

249,914. Sulphuric acid, Process of manufacturing. H. Petersen. December 29, 1924.

249,916. Neutral triglycerides mutually or with other esters, Process for the conversion of. C. Van Loon. December 30, 1924.

249,925. Hydrogen, Manufacture of. W. P. Rogers. January 1, 1925.

249,973. Oxidation products of aromatic hydrocarbons, Manufacture of—by air oxidation. A. G. Green. February 6, 1925.

249,993. Reddish yellow vat dyestuffs, Manufacture of. British Dyestuffs Corporation, Ltd., J. Baddiley and A. Shepherdson. March 5, 1925.

250,075. Azo dyestuffs, Manufacture and production of. J. Y. Johnson. (*Badische Anilin and Soda Fabrik.*) July 13, 1925.

250,078. Silica Gel, Manufacture of. Chemische Fabrik auf Actien (vorm. E. Schering), and W. Klaphake. July 20, 1925.

250,102. Removing aluminium chloride residues from vessels used for the catalytic treatment of petroleum hydrocarbons, Process for. A. J. H. Haddan. (*Gulf Refining Co.*) September 11, 1925.

250,132. Iron carbonyl, Manufacture and production of. J. Y. Johnson. (*Badische Anilin and Soda Fabrik.*) November 25, 1925.

232,262. Dyes, Process of manufacturing. H. Pereira. April 10, 1924.

235,548. Recovery of chromium as chromate from chromiferous waste materials resulting from the leather industry, Process for. S. G. S. Dicker. (*J. Mayer and Sohn.*) May 26, 1925.

235,860. Fertilisers, Process for the manufacture of—and the products obtained thereby. Rhenania Verein Chemischer Fabriken Akt.-Ges. June 23, 1924.

243,368. Dehydration of impure ethylic alcohol, Process and apparatus for. Distilleries des Deux-Sèvres. November 20, 1924.

250,639, 250,640. Rubber, Manufacture of. K.D.P., Ltd. December 19, 1924. Additions to 213,886 as modified by 214,583 and 219,277.

250,661. Carbonisation of coal, peat, wood, and the like. C. B. Winzer and P. A. Brown. January 14, 1925.

250,700. Hydrogen and other gases, Manufacture of. Airship Guarantee Co., Ltd., and P. L. Teed. January 27, 1925.

250,701. Aromatic hydrocarbons, Processes for the production of —by cracking. A. E. Dunstan, R. Pitkethly and E. S. L. Beale. January 29, 1925.

250,721. Alloys. R. Wellesley. February 26, 1925.

250,722. Chemical reactions, Method of and apparatus for carrying out. E. Buntz. February 26, 1925.

250,726. Platinum and other platiniferous metals, Process for the separation and purification of—from platiniferous ores and substances. L. D. Hooper. March 6, 1925.

250,785. Triphenylmethane series, Manufacture of dyestuffs of. A. G. Bloxam. (*Chemische Fabrik Griesheim-Elektron.*) May 29, 1925.

250,819. Diarylamines, Manufacture of. O. Y. Imray. (*Soc. of Chemical Industry in Basle.*) September 11, 1925.

250,824. Waste liquors containing cyanogen compounds, Process of treating. J. Denis. September 18, 1925.

250,837. Purification of gases, Process for. S. Coulier. October 8, 1925.

250,883. Mono-oxamic acids of diaminoanthraquinones. British Dyestuffs Corporation, Ltd., H. M. Bunbury and R. Robinson. December 19, 1924.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

IT is now possible to give some estimate of the position of the industry after the strike. Comparatively few of the half million workers in the industry came out and consequently orders for home and export trade can be executed from stock as soon as transport is available. The various branches, however, differ in their capacity to continue production according to the amount of coal they consume. The heavy chemical and tar distillation industries are for this reason less favourably situated than the others.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £37 per ton, Powder, £39 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, packages extra, returnable.

BLEACHING POWDER.—Spot, £9 10s. d/d; Contract, £8 10s. d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystal, £23 per ton. Powder, £24 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

CALCIUM CHLORATE (SOLID).—£5 12s. 6d. to £5 17s. 6d. per ton d/d, carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 64 O.P.—Industrial, 2s. 5d. to 2s. 11d. per gall. Mineralised, 3s. 8d. to 4s. per gall., in each case according to quantity.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3⅞d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER 60/62%.—£17 per ton for home market, 1-cwt. iron drums included.

SODIUM CHLORATE.—3d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.r. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.r. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—4½d. to 5d. per lb. Crude 60's, 1s. 4½d. to 1s. 6d.

ACID CRESYLIC 97/99.—1s. 6½d. to 1s. 9d. per gall. Pale, 95%, 1s. 5d. to 1s. 7d. per gall. Dark, 1s. 3d. to 1s. 5d. per gall. Steady.

ANTHRACENE.—A quality, 3d. to 4d. per unit.

ANTHRACENE OIL, STRAINED.—7d. to 8d. per gall. Unstrained, 6½d. to 7½d. per gall.

BENZOL.—Crude 65's, 1s. 1d. to 1s. 3½d. per gall., ex works in tank wagons. Standard Motor, 1s. 8½d. to 1s. 11d. per gall., ex works in tank wagons. Pure, 1s. 10d. to 2s. 3d. per gall., ex works in tank wagons.

TOLUOL.—90%, 1s. 9½d. to 2s. per gall. Pure, 2s. to 2s. 3d. per gall.

XYLOL.—2s. to 2s. 6d. per gall.

CREOSOTE.—Cresylic, 20/24%, 9d. to 10d. per gall. Standard specification, middle oil, heavy, 6½d. to 7d. per gall.

NAPHTHA.—Crude, 9d. to 1s. per gall. according to quality. Solvent 90/160, 1s. 5d. to 2s. per gall. Solvent 90/190, 1s. to 1s. 4d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £3 10s. to £5 per ton. Whizzed or hot pressed, £5 10s. to £7 10s.

NAPHTHALENE.—Crystals and Flaked, £11 10s. to £13 per ton, according to districts.

PITCH.—Medium soft, 67s. 6d. to 70s. per ton, according to district. Nominal.

PYRIDINE.—90/140, 17s. to 18s. per gall. **Heavy,** 7s. to 10s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated.

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. 6d. per lb. 100%.

ACID BENZOIC.—1s. 9d. per lb.

ACID GAMMA.—8s. per lb.

ACID H.—3s. 3d. per lb. 100% basis d/d.

ACID NAPHTHIONIC.—2s. 2d. per lb. 100% basis d/d.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb. 100% basis d/d.

ACID SULPHANILIC.—9d. per lb. 100% basis d/d.

ANILINE OIL.—7d. per lb. naked at works.

ANILINE SALTS.—7d. to 7½d. per lb. naked at works.

BENZALDEHYDE.—2s. 1d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

***o*-CRESOL 29/31° C.**—3d. to 3½d. per lb.

***m*-CRESOL 98/100%.**—2s. 1d. to 2s. 3d. per lb.

***p*-CRESOL 32/34° C.**—2s. 1d. to 2s. 3d. per lb.

DICHLORANILINE.—2s. 3d. per lb.

DIMETHYLANILINE.—1s. 11d. to 2s. per lb. d/d. Drums extra.

DINITROBENZENE.—9d. per lb. naked at works.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLANILINE.—2s. 10d. per lb. d/d.

***a*-NAPHTHOL.**—2s. per lb. d/d.

***B*-NAPHTHOL.**—11d. to 1s. per lb. d/d.

***a*-NAPHTHYLAMINE.**—1s. 3d. per lb. d/d.

***B*-NAPHTHYLAMINE.**—3s. 2d. per lb. d/d.

***o*-NITRANILINE.**—5s. 9d. per lb.

***m*-NITRANILINE.**—3s. 3d. per lb. d/d.

***p*-NITRANILINE.**—1s. 9d. per lb. d/d.

NITROBENZENE.—5d. per lb. naked at works.

NITRONAPHTHALENE.—10d. per lb. d/d.

R. SALT.—2s. 4d. per lb. 100% basis d/d.

SODIUM NAPHTHIONATE.—1s. 9d. per lb. 100% basis d/d.

***o*-TOLUIDINE.**—8d. per lb. naked at works.

***p*-TOLUIDINE.**—2s. 2d. per lb. naked at works.

***m*-XYLIDINE ACETATE.**—2s. 11d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £8. Grey, £17 10s. per ton. Liquor, 9d. per gall. 32° Tw.

CHARCOAL.—£7 to £9 per ton, according to grade and locality.

IRON LIQUOR.—1s. 6d. per gall. 32° Tw. 1s. 2d. per gall., 24° Tw.

RED LIQUOR.—9½d. to 1s. per gall.

WOOD CREOSOTE.—2s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—3s. 6d. per gall. 60% O.P. Solvent, 3s. 6d. per gall. 40% O.P.

WOOD TAR.—£3 to £5 per ton, according to grade.

BROWN SUGAR OF LEAD.—£39 to £40 per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6d. to 1s. 5d. per lb., according to quality, Crimson, 1s. 3d. to 1s. 7½d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—2s. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CADMIUM SULPHIDE.—2s. 9d. per lb.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£46 to £55 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5½d. to 6½d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton f.o.r. London.
SULPHUR.—£9 to £11 per ton, according to quality.
SULPHUR CHLORIDE.—4d. per lb., carboys extra.
SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.
THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb. carriage paid.
THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.
VERMILION, PALE OR DEEP.—5s. 3d. per lb.
ZINC SULPHIDE.—1s. 1d. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, 80% B.P.—£39 per ton ex wharf London in glass containers.
ACID, ACETYL SALICYLIC.—2s. 4d. to 2s. 5d. per lb. Keen competition met.
ACID, BENZOIC B.P.—2s. to 2s. 3d. per lb., according to quantity.
ACID, BORIC B.P.—Crystal, £43 per ton; Powder, £47 per ton. Carriage paid any station in Great Britain, in ton lots.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—1s. 4d. to 1s. 4½d. per lb., less 5%.
ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.
ACID, PYROGALLIC, CRYSTALS.—6s. 7d. per lb. Resublimed, 7s. 3d.
ACID, SALICYLIC.—1s. 3½d. to 1s. 4½d. per lb. Technical.—10¾d. per lb.
ACID, TANNIC B.P.—2s. 10d. per lb.
ACID, TARTARIC.—1s. 0½d. per lb., less 5%. Market firm.
AMIDOL.—6s. 6d. per lb., d/d.
ACETANILIDE.—1s. 7d. to 1s. 8d. per lb. for quantities.
AMIDOPYRIN.—12s. 6d. per lb.
AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity.
AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks.
ATROPINE SULPHATE.—11s. per oz. for English make.
BARBITONE.—10s. per lb.
BENZONAPHTHOL.—3s. 3d. per lb. spot.
BISMUTH CARBONATE.—12s. 6d. to 14s. 3d. per lb.
BISMUTH CITRATE.—9s. 6d. to 11s. 3d. per lb.
BISMUTH SALICYLATE.—10s. 3d. to 12s. per lb.
BISMUTH SUBNITRATE.—10s. 9d. to 12s. 6d. per lb. according to quantity.
BORAX B.P.—Crystal, £27; Powder, £28 per ton. Carriage paid any station in Great Britain, in ton lots.
BROMIDES.—Potassium, 1s. 8½d. to 1s. 11d. per lb.; sodium, 1s. 11d. to 2s. 2d. per lb.; ammonium, 2s. 2d. to 2s. 5d. per lb., all spot.
CALCIUM LACTATE.—1s. 2½d. to 1s. 4d.
CHLORAL HYDRATE.—3s. 3d. to 3s. 6d. per lb., duty paid.
CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.
CREOSOTE CARBONATE.—6s. per lb.
FORMALDEHYDE.—£40 per ton, in barrels ex wharf.
GUAIACOL CARBONATE.—7s. 6d. per lb.
HEXAMINE.—2s. 4d. to 2s. 6d. per lb.
HOMATROPINE HYDROBROMIDE.—30s. per oz.
HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.
HYDROGEN PEROXIDE (12 VOLS.).—1s. 8d. per gallon f.o.r. makers' works, naked.
HYDROQUINONE.—4s. 3d. per lb., in cwt. lots.
HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.
IRON AMMONIUM CITRATE B.P.—2s. to 2s. 3d. per lb. Green, 2s. 4d. to 2s. 9d. per lb. U.S.P., 2s. 1d. to 2s. 4d. per lb.
MAGNESIUM CARBONATE.—Light Commercial, £31 per ton net.
MAGNESIUM OXIDE.—Light Commercial, £67 10s. per ton, less 2½%, price reduced; Heavy Commercial, £22 per ton, less 2½%; Heavy Pure, 2s. to 2s. 3d. per lb., according to quantity.
MENTHOL.—A.B.R. recrystallised B.P., 20s. net per lb., Synthetic, 12s. to 15s. per lb., according to quality.
MERCURIALS.—Red oxide, 5s. 8d. to 5s. 10d. per lb.; Corrosive sublimate, 4s. to 4s. 2d. per lb.; white precipitate, 4s. 6d. to 4s. 8d. per lb.; Calomel, 4s. 3d. to 4s. 5d. per lb.
METHYL SALICYLATE.—1s. 7d. per lb.
METHYL SULPHONAL.—16s. 6d. per lb.
METOL.—9s. per lb. British make.
PARAFORMALDEHYDE.—1s. 11d. for 100% powder.
PARALDEHYDE.—1s. 4d. per lb.
PHENACETIN.—4s. to 4s. 3d. per lb.
PHENAZONE.—6s. to 6s. 3d. per lb.
PHENOLPHTHALEIN.—4s. to 4s. 3d. per lb.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—80s. per cwt., less 2½% for ton lots.
POTASSIUM CITRATE.—1s. 11d. to 2s. 2d. per lb.
POTASSIUM FERRICYANIDE.—1s. 9d. per lb. in cwt. lots. Quiet.
POTASSIUM IODIDE.—16s. 8d. to 17s. 5d. per lb., according to quantity.
POTASSIUM METABISULPHITE.—7½d. per lb., 1-cwt. kegs included, f.o.r. London.
POTASSIUM PERMANGANATE.—B.P. crystals, 6¼d. per lb., spot.
QUININE SULPHATE.—1s. 8d. to 1s. 9d. per oz., in 100 oz. tins.
RESORCIN.—4s. to 5s. per lb., spot.
SACCHARIN.—55s. per lb.
SALOL.—3s. per lb.
SODIUM BENZOATE, B.P.—1s. 10d. to 2s. 2d. per lb.
SODIUM CITRATE, B.P.C., 1911.—1s. 8d. to 1s. 11d. per lb., B.P.C., 1923. 1s. 11d. to 2s. 2d. per lb., according to quantity.
SODIUM FERROCYANIDE.—4d. per lb. carriage paid.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 5s. per ton, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—75s. to 80s. per cwt., according to quantity.
SODIUM SALICYLATE.—Powder, 1s. 9d. to 1s. 10d. per lb. Crystal, 1s. 10d. to 1s. 11d. per lb.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.
SODIUM SULPHITE, ANHYDROUS, £27 10s. to £28 10s. per ton, according to quantity; 1-cwt. kegs included.
SULPHONAL.—11s. 6d. per lb. Limited demand.
TARTAR EMETIC, B.P.—Crystal or Powder, 1s. 10d. to 2s. per lb.
THYMOL.—12s. to 13s. 9d. per lb.

Perfumery Chemicals

ACETOPHENONE.—10s. per lb.
AUBEPINE (EX ANETHOL).—9s. 6d. per lb.
AMYL ACETATE.—3s. per lb.
AMYL BUTYRATE.—6s. 6d. per lb.
AMYL SALICYLATE.—3s. 3d. per lb.
ANETHOL (M.P. 21/22° C.).—5s. 6d. per lb.
BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s. 3d. per lb.
BENZYL ALCOHOL FREE FROM CHLORINE.—2s. 3d. per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.
BENZYL BENZOATE.—2s. 9d. per lb.
CINNAMIC ALDEHYDE NATURAL.—18s. 6d. per lb.
COUMARIN.—11s. 9d. per lb.
CITRONELLOL.—15s. per lb.
CITRAL.—9s. per lb.
ETHYL CINNAMATE.—10s. per lb.
ETHYL PHTHALATE.—3s. per lb.
EUGENOL.—9s. 6d. per lb.
GERANIOL (PALMAROSA).—19s. 3d. per lb.
GERANIOL.—7s. to 16s. per lb.
HELIOTROPINE.—6s. per lb.
ISO EUGENOL.—14s. per lb.
LINALOL EX BOIS DE ROSE.—19s. per lb.
LINALYL ACETATE.—18s. per lb.
METHYL ANTHRANILATE.—9s. 3d. per lb.
METHYL BENZOATE.—5s. per lb.
MUSK KETONE.—34s. 6d. per lb.
MUSK XYLOL.—8s. per lb.
NEROLIN.—4s. per lb.
PHENYL ETHYL ACETATE.—12s. per lb.
PHENYL ETHYL ALCOHOL.—9s. 6d. per lb.
RHODINOL.—27s. 6d. per lb.
SAFROL.—1s. 8d. per lb.
TERPINEOL.—1s. 6d. per lb.
VANILLIN.—21s. 6d. to 23s. per lb.

Essential Oils

ALMOND OIL.—12s. 6d. per lb.
ANISE OIL.—3s. 1d. per lb.
BERGAMOT OIL.—30s. 6d. per lb.
BOURBON GERANIUM OIL.—11s. 3d. per lb.
CAMPHOR OIL.—60s. per cwt
CINNAMON OIL, LEAF.—5d. per oz.
CASSIA OIL, 80/85%.—9s. 6d. per lb.
CITRONELLA OIL.—Java, 85/90%, 3s. Ceylon, 2s. per lb.
CLOVE OIL.—6s. 6d. per lb.
EUCALYPTUS OIL, 70/75%.—1s. 10d. per lb.
LAVENDER OIL.—French 38/40%, Esters, 21s. 6d. per lb.
LEMON OIL.—9s. per lb.
LEMONGRASS OIL.—4s. 9d. per lb.
ORANGE OIL, SWEET.—11s. 9d. per lb.
OTTO OF ROSE OIL.—Bulgarian, 65s. per oz. Anatolian, 40s. per oz.
PALMA ROSA OIL.—12s. per lb.
PEPPERMINT OIL.—Wayne County, 65s. per lb. Japanese, 11s. per lb.
PETITGRAIN OIL.—9s. per lb.
SANDAL WOOD OIL.—Mysore, 26s. per lb. Australian, 17s. 3d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, May 21, 1926.

THE full effect of the General Strike upon the chemical trade in this country has yet to be assessed. There has been a rush of orders following the close of the strike, but the business is mostly on the small side and the actual volume of trade transacted is not too satisfactory. Prices on the whole are very firm and there are few changes to report. The export demand has been quieter.

General Chemicals

ACETONE.—The market remains firm at from £81 to £83 per ton.

ACID ACETIC has been in much better demand. Prices unchanged at £37 to £39 per ton for technical 80% and £38 to £40 per ton for the pure grade.

ACID FORMIC is slow of sale, price unchanged at about £48 per ton for 85%.

ACID LACTIC is quiet, price is firm at £43 10s. per ton for 50% by weight.

ACID OXALIC.—Few sales are reported but the demand is still very much below the average. Price is very firm at 3¾d. per lb.

ACID TARTARIC is in quiet demand at 11½d. per lb.

ALUMINA SULPHATE is quiet and unchanged at £5 15s. per ton.

AMMONIUM CHLORIDE is still very weak and little business has been transacted. Price is about £18 per ton.

ARSENIC.—There is no improvement in the market. The nominal price is £14 per ton, but buyers in quantity can do better.

BARIUM CHLORIDE is quiet at £10 to £11 per ton.

EPSOM SALTS.—Unchanged at £5 15s. per ton.

FORMALDEHYDE is firm and is quoted at £42 to £43 10s. per ton.

IRON SULPHATE.—Unchanged.

LEAD ACETATE has been an active market, particularly for export. Price £45 to £46 per ton, for white, with £2 per ton less for the brown quality.

METHYL ALCOHOL is in quiet demand at about £45 per ton.

METHYL ACETONE.—No business of importance has passed during the current week. Price is firm at £57 per ton.

POTASSIUM CARBONATE AND CAUSTIC.—Unchanged.

POTASSIUM CHLORATE.—Unchanged.

POTASSIUM PERMANGANATE in good demand at 6½d. per lb.

POTASSIUM PRUSSIATE.—Unchanged at 7d. to 7½d. per lb.

SODA ACETATE is very scarce. Spot price is advanced to £23 per ton.

SODA BICHROMATE is quiet. Makers' price is unchanged at 3½d. per lb.

SODA NITRITE is only in small demand, price about £21 per ton.

SODA PHOSPHATE.—Unchanged at about £14 per ton.

SODA PRUSSIATE is in fair inquiry, price is about 4d. per lb.

SODA SULPHIDE.—Unchanged with a weak tendency.

ZINC SULPHATE.—Unchanged.

Coal Tar Products

In spite of the fact that the General Strike has been settled, the Coal Strike still continues, which renders prices for different Coal Tar Products more or less nominal.

90's BENZOL can be bought for delivery after the settlement of the Coal Strike at 1s. 10d. per gallon, and moderate supplies are available for immediate delivery, notwithstanding the Coal Strike, at something in the region of 2s. per gallon on rails.

PURE BENZOL is quoted at from 2s. 4d. to 2s. 6d. per gallon on rails, for near delivery, while for delivery after the Strike, the price is from 2s. 2d. to 2s. 4d. per gallon.

CREOSOTE OIL is nominally unchanged at 5¾d. to 6d. per gallon on rails, while the price in London remains in the region of 7d. per gallon.

CRESYLIC ACID is nominally 1s. 9d. to 1s. 10d. per gallon on rails, for the pale quality 97/99%, while the dark quality 95/97% is quoted at about 1s. 7d. to 1s. 8d. per gallon on rails.

SOLVENT NAPHTHA is stationary, at about 1s. 5½d. per gallon on rails.

HEAVY NAPHTHA is quoted at 1s. 1d. per gallon on rails.

NAPHTHALENES are unchanged, with practically no business doing.

PITCH is nominal at 80s. to 85s. per ton, f.o.b. U.K. ports.

Latest Oil Prices

LONDON.—LINSEED OIL steady, 2s. 6d. decline. Spot, £31, ex-mill; May, £29 12s. 6d.; June-August, £29 15s.; September-December, £30 5s. RAPE OIL firm. Crude extracted, spot, £49; technical refined, £51. COTTON OIL firm and 20s. higher. Refined common edible, £42; Egyptian crude, £37; deodorised, £44. TURPENTINE quiet and easier. American, spot, 63s. June, 61s. 6d.; and July-December, 59s. 6d. per cwt.

HULL, May 19.—LINSEED OIL, spot and May, £30 2s. 6d. June-August, £30 7s. 6d.; September-December, £30 12s. 6d. COTTON OIL.—Bombay crude, £35 5s.; Egyptian crude, £37; edible refined, £41; technical, £38 15s. PALM KERNEL OIL.—Crushed naked, 5½ per cent., £43. GROUNDNUT OIL.—Crushed-extracted, £45; deodorised, £49. SOYA OIL.—Extracted and crushed, £36; deodorised, £39 10s. RAPE OIL.—Crude extracted, £47 10s.; refined, £49 10s. per ton, net cash terms, ex mill. CASTOR OIL and COD OIL unaltered.

Nitrogen Products Market

Export.—During the last fortnight British producers have been unable to offer for prompt shipment, but continental makers have been selling at the equivalent f.o.b. U.K. port of £11 to £11 5s. per ton in single bags. This shows a considerable drop from April shipment. This is usual for the month of May because the new fertiliser year commences in June and producers commence then at the bottom of their price scale. Prices for the second half of May shipment are slightly lower. Producers are not anxious to sell at present for June and later shipment.

Home.—The home demand continued very strongly right to the end of April. The stoppage, of course, prevented any but "ex works" deliveries. Despite the loss of the major portion of May consumption, it seems that the heavier buying in the earlier months will result in an increased consumption of sulphate for the year ending May 31 next. The prices remain at £13 1s. per ton for May delivery. Prices for June-August have yet to be announced It is expected that a large drop will take place and that producers will as usual work to a rising scale as the new year advances. British production for the coming months is uncertain on account of the uncertainty in the coal industry. Whether work resumes in the mines shortly or not the production of sulphate of ammonia will be affected; it is useless to endeavour to calculate the effect at present.

Nitrate of Soda.—The demand for nitrate was good during April. Sluggishness set in for the month of May and the market sagged a little. As buyers will be able to write down their unsold stock to the new price level, cargoes for prompt arrival are changing hands on the basis of £11 7s. to £11 11s. c.i.f. chief European port.

Calcium Cyanamide

THE demand for this material for use as a fertiliser is, of course, slackening off as the spring season draws to a close. Interest in calcium cyanamide now chiefly centres around its use for the destruction of charlock. On the continent the fertiliser market is remaining active rather later than is normally the case. Calcium cyanamide contains 19 per cent. nitrogen and about 60 per cent. lime. The price to British farmers for May delivery is £10 6s. per ton for four-ton lots, carriage paid to any railway station.

Potash Fertilisers

THE imports of potash fertilisers for direct consumption in the present season have latterly begun to fall off, although fertiliser manufacturers and merchants have been busy, up to the commencement of the strike, in effecting deliveries of compound and single fertilisers, which are now wanted especially for the root crops. In the compound manures sold this season there has been a notable advance, as compared with previous years, in the percentage of potash. This improvement in the quality of compound manures was much needed, although there are still certain classes of compound manures on the market which contain too little potash for the crops' requirements.

There has sprung up quite a keen inquiry for finely ground kainit for the destruction of charlock. This method of charlock destruction is now a universally recognised one and is responsible for the consumption of several thousand tons of kainit every year. Six or eight cwts. per acre applied on a cereal crop infested with charlock, when wet with dew in the early morning, is a simple and effective method of getting rid of charlock and many other weeds of the soft leaf variety.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.*

Glasgow, May 19, 1926.

THE dislocation occasioned by the General Strike prevented business in any appreciable quantity for the past week or so, and up to the time of going to press there is nothing of any importance to record. Prices may be taken as at about the same level as those given in our last report, as follows :—

Industrial Chemicals

ACID ACETIC.—98/100%, £55 to £67 per ton, according to quantity and packing, c.i.f. U.K. port ; 80% pure, £39 to £41 per ton ; 80% technical, £38 to £39 per ton.

ACID BORIC.—Crystal, granulated or small flakes, £37 per ton ; powdered, £39 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—In little demand and nominally 4¾d. per lb. delivered or f.o.b. U.K. ports, but this price could be shaded for firm business.

ACID CITRIC, B.P. CRYSTALS.—Now quoted 1s. 3d. per lb., less 5% ex wharf. The same price named for material to come forward.

ACID FORMIC, 85%.—Quoted about £50 per ton, ex wharf, early delivery. Offered from the continent at £49 per ton, c.i.f. U.K. ports.

ACID HYDROCHLORIC.—In little demand. Price 6s. 6d. per carboy, ex works.

ACID NITRIC, 80°.—Remains unchanged at £23 5s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—Quoted 3⅝d. per lb., ex store, spot delivery. On offer for prompt shipment from the continent at 3½d. per lb., c.i.f. U.K. ports, duty paid.

ACID SULPHURIC.—144°, £3 12s. 6d. per ton ; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality 20s. per ton more.

ACID TARTARIC, B.P. CRYSTALS.—In little demand and price unchanged at 11¼d. per lb., less 5% ex wharf.

ALUMINA SULPHATE, 17/18% IRON FREE.—On offer from the continent at about £5 8s. 6d. per ton, c.i.f. U.K. ports. Spot material quoted £6 5s. per ton, ex store.

ALUM LUMP POTASH.—Unchanged at about £7 12s. 6d. per ton, c.i.f. U.K. ports. Spot material quoted £9 per ton, ex store ; powdered quality 5s. per ton less. Powdered quality offered from the continent at about £7 7s. 6d. per ton, c.i.f. U.K. ports.

AMMONIA ANHYDROUS.—Imported material selling at about 11¼d. to 11½d. per lb., ex wharf, containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton ; powdered, £39 per ton, packed in 5 cwt. casks delivered or f.o.b. U.K. ports.

AMMONIA LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture quoted £23 10s. to £25 10s. per ton, ex station. Continental on offer at about £21 10s. per ton, c.i.f. U.K. ports. Fine white crystals of continental manufacture quoted £18 5s. per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED CORNISH.—Spot material available at £16 15s. per ton, ex store. On offer for early delivery at about £16 per ton, ex wharf.

BARIUM CHLORIDE, 98/100%.—Refined white crystals quoted £8 15s. per ton, c.i.f. U.K. ports, prompt shipment from the continent. Spot material available at about £10 15s. per ton, ex store.

BLEACHING POWDER.—English material unchanged at £9 10s. per ton, ex station. Contracts 20s. per ton less. Continental on offer at about £7 12s. 6d. per ton, c.i.f. U.K. ports.

BARYTES.—English material unchanged at £5 5s. per ton, ex works. Continental quoted £5 per ton, c.i.f. U.K. ports.

BORAX.—Granulated, £22 10s. per ton ; crystals, £23 per ton ; powdered, £24 per ton, carriage paid U.K. stations.

CALCIUM CHLORIDE.—English manufacturers' price unchanged at £5 12s. 6d. to £5 17s. 6d. per ton, ex station. Continental again rather lower at about £4 2s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—In moderate demand for export quoted £3 17s. 6d. per ton, c.i.f. U.K. ports. On offer for home consumption at about £3 10s. per ton, f.o.r. works.

COPPER SULPHATE, 99/100%.—Quoted £23 10s. per ton, f.o.b. U.K. ports for export. Continental on offer at about £21 10s. per ton, ex wharf.

FORMALDEHYDE, 40%.—Unchanged at about £37 per ton, c.i.f. U.K. ports prompt shipment. Spot material available at about £38 per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental on offer at about £3 5s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material quoted £38 per ton, ex store.

LEAD, WHITE.—Quoted £37 per ton, c.i.f. U.K. ports. Spot material available at about £38 15s. per ton, ex store.

LEAD ACETATE.—Limited quantities of white crystals available on the continent at about £44 5s. per ton, c.i.f. U.K. ports. Prompt shipment. Brown on offer at about £39 per ton, c.i.f.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.

POTASH CAUSTIC, 88/92%.—Syndicate prices vary from £25 10s. to £28 15s. per ton, c.i.f. U.K. ports, according to quantity and destination. Spot material available at about £29 per ton, ex store.

POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb., delivered.

POTASSIUM CARBONATE, 96/98%.—Quoted £25 5s. per ton, ex wharf, early delivery. Spot material on offer at £26 10s. per ton, ex store ; 90/94% quality quoted £22 5s. per ton, c.i.f. U.K. ports.

POTASSIUM CHLORATE, 98/100% POWDERED.—Offered from the continent at about £27 10s. per ton, c.i.f. U.K. ports.

POTASSIUM NITRATE (SALTPETRE).—Quoted £22 per ton, c.i.f. U.K. ports, prompt shipment. Spot material available at about £24 10s. per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 7½d. per lb., ex store, spot delivery. To come forward 7d. per lb., ex wharf.

POTASSIUM PRUSSIATE (YELLOW).—Quoted 7½d. per lb., ex store, spot delivery. Offered from the continent at 7¼d. per lb., ex wharf.

SODA CAUSTIC.—76/77%, £17 10s. per ton ; 70/72%, £16 2s. 6d. per ton. Broken, 60%, £16 12s. 6d. per ton. Powdered, 98/99%, £20 17s. 6d. per ton. All carriage paid U.K. stations, spot delivery. Contracts 20s. per ton less.

SODIUM ACETATE.—Spot material scarce, but limited supplies available at £20 10s. per ton, ex store. Quoted £19 15s. per ton, c.i.f. U.K. ports.

SODIUM BICARBONATE.—Refined recrystallised quality, £10 10s. per ton, ex quay or station. M.W. quality 30s. per ton less.

SODIUM BICHROMATE.—English price unchanged at 3½d. per lb., delivered.

SODIUM CARBONATE.—Soda Crystals, £5 to £5 5s. per ton, ex quay or station. Powdered or pea quality, £1 7s. 6d. per ton more ; alkali 58%, £8 12s. 3d. per ton, ex quay or station.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 14s. 10d. per ton, ex station, minimum 4-ton lots. Pea crystals, £4 10s. per ton, ex station. Continental commercial quality on offer at about £8 5s. per ton, c.i.f. U.K. ports.

SODIUM NITRATE.—Quoted £13 per ton, ex store ; 96/98% refined quality, 7s. 6d. per ton extra.

SODIUM NITRITE, 100%.—Quoted £24 per ton, ex store. Offered from the continent at about £22 5s. per ton, c.i.f. U.K. ports.

SODIUM PRUSSIATE, YELLOW.—Spot material now on offer at 4½d. per lb., ex store. Quoted 4d. per lb., ex wharf, early shipment from the continent.

SODIUM SULPHATE, SALTCAKE.—Price for home consumption, £3 10s. per ton, ex works. Good inquiry for export and higher prices obtainable.

SODIUM SULPHIDE, 60/62%.—Solid, £13 5s. per ton. Broken, £14 5s. per ton. Flake, £15 5s. per ton. Crystals, 31/34%, £8 12s. 6d. per ton. All delivered buyers' works U.K. Minimum, 5-ton lots, with slight reduction for contracts ; 60/62% solid quality offered from the continent at about £9 15s. per ton, c.i.f. U.K. ports. Broken, 15s. per ton more. Crystals, 30/32%, £7 per ton, c.i.f. U.K. ports.

SULPHUR.—Flowers, £11 10s. per ton ; roll, £10 5s. per ton ; rock, £10 5s. per ton ; ground, £9 15s. per ton, ex store, spot delivery. Prices nominal.

ZINC CHLORIDE.—British material, 96/98%, quoted £23 15s. per ton, f.o.b. U.K. port ; 98/100% solid on offer from the continent at about £21 15s. per ton, c.i.f. U.K. ports ; powdered, 20s. per ton extra.

ZINC SULPHATE.—Continental manufacture on offer at about £11 per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

U.S. Zinc Sales Increase

ZINC pigments and salts sold by domestic manufacturers in the United States in 1925 had a value of $42,980,145, according to a compilation made by the U.S. Bureau of Mines, Department of Commerce. In 1924, sales valued at $37,953,110 were reported. The products covered by the reports include lithopone, zinc oxide, leaded zinc oxide, zinc chloride and zinc sulphate. For 1925, an increase in sales is shown for every produce except zinc chloride, in which there was a loss of 11 per cent. This loss was coincident with a gain of 10 per cent. in the average value per ton. Lithopone and zinc oxide showed the largest sales in the history of these industries, making gains of 32 per cent. and 17 per cent., respectively, over sales in 1924. The average value per ton, however, was lower than in the preceding year.

F.21

FIRTH

RESISTANT STEELS FOR CHEMICAL PLANT

Two easily worked steels which resist chemical attack and corrosion

The combined qualities of resistance to atmospheric influence, moisture, sea water, many acids (including nitric), vinegar, and many organic agents, combined with ease in manipulation, are possessed by the two following steels.

FIRTH "STAYBRITE" SILVER STEEL

The new super-rustless and super-malleable steel

Supplied in the form of descaled sheets and strip, possessing a beautiful surface and colour, and taking a high degree of polish.

Also supplied in large dimensions of varying thickness for plant construction, in condition suitable for specific application.

It is intended to replace the class of material known as "Stainless Iron," over which it offers great advantages.

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has a yield point of about 15 tons per sq. in. and an elongation of 55% to 70%. This exceptional ductility is combined with maximum corrosion resisting qualities, which it possesses to a remarkable degree.

It may be cold pressed to a degree far in advance of the so-called "Stainless Irons," and, moreover, presents no difficulties in manipulation, since it may be welded, brazed, soldered and rivetted without trouble.

FIRTH STAINLESS STEEL

Supplied in the form of Bars, Sheets, Wire, Tubes, Forgings, Drop Stampings and Castings.

This steel may be supplied in the hard condition to resist abrasion, or in a condition easily machineable to comply with any specified requirements.

It is specially adapted for all parts where resistance to rusting and staining influence, combined with great mechanical strength, is necessary.

The whole Firth experience of the successful application of Stainless Steels to hundreds of problems similar to yours is at your service

THOS. FIRTH & SONS, LTD., SHEFFIELD

Manchester Chemical Market

(From Our Own Correspondent.)

Manchester, May 20, 1926.

The demand for most lines of chemicals this week has, of course, been better than at any time since the general strike began, but it is still on a limited scale and is likely to remain so until the consuming industries are in a position more closely approaching normal from the point of view of coal supplies. With a settlement of the coal trouble this week an improvement should soon be noticeable. Next week, however, will for all practical purposes be a negative one so far as trade is concerned, for Whitsuntide in this area is more or less strictly observed as a holiday period and, at the best, what passes for business is confined to an odd day and one or two half days. Taking the market generally, prices are steady in most sections.

There has not been much demand for sulphide of sodium, and 60–65 per cent. concentrated material is quoted at about £10 10s. per ton, and commercial crystals at £9 5s. Hyposulphite of soda is also a slow section of the market, with commercial quality quoted at £9 5s. and photographic at round £14 10s. per ton. Phosphate of soda is selling only in small quantities and rates are easier, about £12 15s. per ton being an average value to-day. Bleaching powder continues to be offered at about £8 10s. per ton but business is on a limited scale. Caustic soda is, perhaps, the most active section and the demand for this is fair and prices steady, 60 per cent. strength being quoted at £15 2s. 6d. per ton and 76 per cent. at £17 10s. per ton. Both Glauber salts and saltcake continue quiet at £3 5s. and £3 per ton, respectively. Bicarbonate of soda shows no alteration in price level, £10 10s. per ton still being quoted, but demand has been poor this week. Acetate of soda remains steady at about £20 per ton. Alkali is in quiet request and prices are unchanged at round £6 15s. per ton. For chlorate of soda inquiry has been on a limited scale but values are steady at about 3¼d. per lb. A similar position exists in regard to bichromate of soda which is also quoted at round 3¼d. per lb.

Yellow prussiate of potash seems to have acquired a steadier tone again and 7d. per lb. is now quoted, though the demand is only on a quiet scale. Permanganate of potash is in limited request at round 7d. per lb. for B.P. quality and 5d. to 5¼d. per lb. for commercial. Carbonate of potash is on offer at about £26 per ton, and 90 per cent. caustic potash at £27. Chlorate of potash is in small demand but the price is maintained at round 4d. per lb. Bichromate of potash is still being offered at 4¼d. per lb.

Sulphate of copper shows little improvement in the volume of business being done and prices have an easy tendency at about £23 15s. per ton. White powdered arsenic, Cornish makes, is unchanged in value at round £14 per ton, on rails, but the demand for this material continues slow. Acetate of lime is again easier at £16 5s. per ton for grey quality and £7 15s. for brown, with inquiry still inactive. Acetate of lead is maintained at £45 10s. per ton for white and about £40 per ton for brown. Nitrate of lead is slow but about unchanged in value at £40 to £41 per ton. The demand for commercial Epsom salts is quiet at the moment but prices show little change at £3 10s. to £3 15s. per ton; magnesium sulphate, pharmaceutical material, is steady at about £4 10s. per ton.

Oxalic acid finds a few buyers, with current values ranging round 3⅝d. per lb. Acetic acid shows little alteration from recent levels, 80 per cent. commercial being quoted at £36 to £37 per ton, and glacial at £67. Tartaric acid is not attracting very much attention from buyers just now but at 11¼d. per lb. prices are virtually unchanged. Citric acid is also rather slow at about 1s. 3d. per lb.

New Companies Registered

COAL OIL EXTRACTION, LTD., 29, Great St. Helens, London, E.C.3. Registered May 6, 1926. Carbonisers of coal, distillers of tar, naphtha and ammonia, manufacturers of or producers of and dealers in coke, coal, tar, pitch, oil, ammoniacal liquors and other residual products, etc. Nominal capital, £1,000 in £1 shares.

DEARBORN CHEMICAL CO., Criterion Buildings, Regent Street, London, S.W.1. Incorporated as a private company in Ontario, Canada, on December 17, 1912, as the Dearborn Chemical Co. of Canada, Ltd., but was renamed as above on November 10, 1922, to manufacture, sell and deal in chemicals, chemical preparations and lubricants. Nominal capital, 100,000 dollars in 100 dollar shares.

GREGG AND CO. (KNOTTINGLEY), LTD. Registered May 5, 1926. Glass bottle manufacturers. Nominal capital, £20,000 in £1 shares. Solicitors: H. Middlebrook, Pearl Chambers, East Parade, Leeds.

MIDGLEY AND PARKINSON, LTD., Warren's Works, Swinnow Lane, Bramley, Leeds. Registered May 14, 1926. Manufacturing, wholesale and retail drysalters; oil, drug and chemical merchants, etc. Nominal capital, £5,000 in £1 shares.

PLYMOUTH OXYGEN CO., LTD. Registered May 12, 1926. Manufacturers of oxygen, nitrogen and plant used in connection with or relating to the manufacture or use of gases, etc. Nominal capital, £6,000 in £1 shares. Solicitors: Square, Geake and Windeatt, 21, Princess Square, Plymouth.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[*NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.*]

CHAPPELL, Mr. K. R., Acton, manufacturing chemist. (C.C., 22/5/26.) £14 12s. 4d. March 31.

SCHOLEY, Charles Henry, Park Square, Ossett, manufacturing chemist. (C.C., 22/5/26.) £37 13s. 6d. January 18.

WORCESTERSHIRE FERTILIZER CO., LTD., Stoke Prior, fertiliser manufacturers. (C.C., 22/5/26.) £14 14s. 7d. March 2.

Deed of Arrangement

MALLAGH, Thomas Henry, trading as MALLAGH AND CO., 32, Great Dover Street, S.E., chemical merchant. (D.A., 22/5/26.) Filed April 30. Trustee, W. P. De la Haye, 4, 5 and 6, King Street, Cheapside, E.C., I.A. Secured creditors, £20; liabilities unsecured, £6,026; assets, less secured claims, £210.

London Gazette, &c.

Company Winding Up Voluntarily

D. AND S. LABORATORIES, LTD. (C.W.U.V., 22/5/26.) John Walker, chartered accountant, appointed liquidator, May 1. Meeting of creditors at Dowell's Rooms, 18, George Street, Edinburgh, on Thursday, May 20, at 12 noon.

Bankruptcy Information

BERGIN, Agnes Effie (married woman), (known and sued as CLAUD EFFIE MARGORY BERGIN, trading as MARGERY LEIGHTON), 35, Gray's Inn Road, London, manufacturing chemist. (R.O., 22/5/26.) Receiving order, April 27. Creditor's petition. First meeting, May 13, 12.30 p.m., and public examination, June 23, 11 a.m., Bankruptcy Buildings, Carey Street, London, W.C.2.

Business Names Registered

[*The following (trading name and address, nature of business, date of commencement, and proprietors' names and addresses) have been registered under the Registration of Business Names Act.*]

CHEMICAL PRODUCTS CO. (chemical manufacturers), 1, Hall-i'th-Wood Lane, Bolton, Lancs. Business commenced April 7, 1926. Registered proprietor: Gilbert Ikin (industrial chemist).